

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT

PERMITTEE

Occidental Chemical Corporation  
Attn: Mr. James F. Hughes  
4201 West 69th Street  
Chicago, Illinois 60629-5718

Application No.: 99110109

I.D. No.: 031600AFI

Applicant's Designation:

Date Received: May 6, 2004

Subject: Sodium Silicate Plant

Date Issued: May 18, 2005

Expiration Date: May 18, 2010

Location: 4201 West 69th Street, Chicago, 60629-5718

This permit is hereby granted to the above-designated Permittee to OPERATE emission unit(s) and/or air pollution control equipment consisting of open hearth glass furnace (Mode 1: glass melting operations controlled by scrubber, Mode 2: cleaning of heat exchanger controlled by scrubber), dissolver and surge bin controlled by scrubber, raw material handling controlled by baghouse, glass conveying system controlled by a wet cyclone, and flash tanks controlled by demister pursuant to the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

- 1a. This federally enforceable state operating permit is issued to limit the emissions of air pollutants from the source to less than major source thresholds (i.e., SO<sub>2</sub> and NO<sub>x</sub> to less than 100 tons per year). As a result the source is excluded from the requirement to obtain a Clean Air Act Permit Program (CAAPP) permit. The maximum emissions of this source, as limited by the conditions of this permit, are described in Attachment A.
- b. Prior to issuance, a draft of this permit has undergone a public notice and comment period.
- c. This permit supersedes all operating permits issued for this location.
- 2a. The Permittee shall not keep store or utilize a residual fuel oil (Grades No. 4, 5, and 6) with sulfur content greater than 0.99%.
- b. Organic liquid by-product or waste materials shall not be used in any fuel combustion emission unit without written approval from the Illinois EPA.
- c. The Illinois EPA shall be allowed to sample all fuels stored at this location.

3. Emissions from glass melting operations in the open hearth glass furnace, controlled by the scrubber shall not exceed the following limits:

<u>Pollutant</u>	<u>Emissions</u>	
	<u>(Tons/Month)</u>	<u>(Tons/Year)</u>
CO	0.45	5.26
NO <sub>x</sub>	4.77	56.13
PM	3.21	37.80
SO <sub>2</sub>	7.59	89.29
VOM	0.45	5.26

These limits are based on the maximum fuel usage and production rate and the compliance procedures described in Condition 4. Compliance with annual limits shall be determined from a running total of 12 months of data.

4. The emissions limitations in Condition 3 shall be determined by the recordkeeping requirements in Condition 9 and by the emission factors and formulas listed below:

- a. To determine emissions resulting from the combustion of natural gas, the following emission factors and formulas shall be used:

<u>Pollutant</u>	<u>Factor</u>	<u>Basis</u>
CO	0.2 lb/ton	AP-42, 11.15 (Glass Manufacturing Revised 10/86)
NO <sub>x</sub>	286 lb/mmscf	Stack test that was performed 5/27/87
PM	1.20 lb/ton	Stack test that was performed 5/27/87
SO <sub>2</sub>	0.6 lb/mmscf	AP-42, 1.4 (Natural Gas Combustion Revised 3/98)
VOM	0.2 lb/ton	AP-42, 11.15

Emissions of NO<sub>x</sub> and SO<sub>2</sub> shall be determined by the following formula:

$$E = G \times R$$

Where:

E = Emissions (lb/hr)

G = Natural gas usage (mmscf/hr)

R = Emission factor listed above (lb/mmscf)

Emissions of CO, PM and VOM shall be determined by the following formula:

$$E = P \times R$$

Where:

E = Emissions (lb/hr)

P = Production Rate (ton/hr)

R = Emission factor listed above (lb/ton)

- b. To determine emissions resulting from the combustion of residual fuel oil, the following emission factors and formulas shall be used:

<u>Pollutant</u>	<u>Factor</u>	<u>Basis</u>
CO	0.2 lb/ton	AP-42, 11.15
NO <sub>x</sub>	59 lb/10 <sup>3</sup> gal	Estimation from Stack Test performed on 5/27/87 & AP-42 factors
PM	1.63 lb/ton	Stack test that was performed 5/29/87
SO <sub>2</sub>	155 lb/10 <sup>3</sup> gal	AP-42, 1.3 (Fuel Oil Combustion Revised 9/98)
VOM	0.2 lb/ton	AP-42, 11.15

Emissions of NO<sub>x</sub> and SO<sub>2</sub> shall be determined by the following formula:

$$E = F \times R$$

Where:

E = Emissions (lb/hr)

F = Fuel Oil Usage (gal/hr)

R = Emission factor listed above (lb/10<sup>3</sup> gal)

Emissions of CO, PM and VOM shall be determined by the following formula:

$$E = P \times R$$

Where:

E = Emissions (lb/hr)

P = Production Rate (ton/hr)

R = Emissions factor listed above (lb/ton)

5. Emissions of particulate matter from the open hearth glass furnace during heat exchanger cleaning operations controlled by wet scrubber shall not exceed 7.07 lb/hr and 7.07 tons/year. These limits are based on the maximum allowable hourly rate of emissions by 35 Ill. Adm. Code 212.321 and 2,000 hours of operation per year.

6. This permit is issued based on negligible emissions of particulate matter from the following items:

- Dissolver and surge bin controlled by scrubber
- Glass conveying system controlled by a wet cyclone
- Flash tanks controlled by a demister

For this purpose, emissions shall not exceed nominal rates of 0.1 lb/hour and 0.44 tons/year.

7. Emissions of particulate matter from raw material handling controlled by baghouse shall not exceed 0.45 lb/hour and 2.0 tons/year. These limits are based on AP-42 emission factors for glass fiber manufacturing, use of the baghouse, and 8,760 hours of operation per year.
- 8a. Compliance with the hourly particulate matter limitations in Conditions 5, 6, and 7 are assumed to be achieved by the normal work practices and maintenance activities inherent in operation of the emission units and control equipment.
- b. The scrubbers, baghouses, wet cyclones, and demister shall be in operation at all times when the associated emission unit(s) are in operation and emitting air contaminants.
- c. No person shall cause or allow any visible emissions of fugitive particulate matter from any process, including any material handling or storage activity beyond the property line of the emission source, pursuant to 35 Ill. Adm. Code 212.301.
- d. In the event that the operation of this emission unit results in an odor nuisance, the Permittee shall take appropriate and necessary actions to minimize odors, including but not limited to, changes in raw material or installation of controls, in order to eliminate the odor nuisance.
9. The Permittee shall maintain records of the following items:
  - a. Usage of natural gas (mmscf/month and mmscf/year);
  - b. Usage of residual fuel oil (gallon/month and gallon/year);
  - c. Production rate (tons/month and tons/year);
  - d. Emissions of CO, NO<sub>x</sub>, SO<sub>2</sub>, PM and VOM from the glass melting operations as calculated in Condition 4 (tons/month and tons/year); and
  - e. Hours of operation of equipment (per month and per year).
10. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request. Any records retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA or USEPA request for records during the course of a source inspection.

11. If there is an exceedance of the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or violation and efforts to reduce emissions and future occurrences.
12. Two (2) copies of required reports and notifications concerning equipment operation or repairs, performance testing or a continuous monitoring system shall be sent to:

Illinois Environmental Protection Agency  
Division of Air Pollution Control  
Compliance Section (#40)  
P.O. Box 19276  
Springfield, Illinois 62794-9276

and one (1) copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency  
Division of Air Pollution Control  
9511 West Harrison  
Des Plaines, Illinois 60016

If you have any questions on this, please call George Kennedy at 217/782-2113.

Donald E. Sutton, P.E.  
Manager, Permit Section  
Division of Air Pollution Control

DES:GMK:psj

cc: Illinois EPA, FOS Region 1  
Lotus Notes

Attachment A - Emission Summary

This attachment provides a summary of the maximum emissions from sodium silicate plant operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario which results in maximum emissions from such a plant. The resulting maximum emissions are below the levels, e.g., 100 tons per year of SO<sub>2</sub> at which this source would be considered a major source for purposes of the Clean Air Act Permit Program. Actual emissions from this source will be less than predicted in this summary to the extent that less material is handled, gaseous fuel is used and control measures are more effective than required in this permit.

	Emissions (Tons/Year)				
	<u>CO</u>	<u>NO<sub>x</sub></u>	<u>PM</u>	<u>SO<sub>2</sub></u>	<u>VOM</u>
Glass Melting Operations	5.26	56.13	37.80	89.29	5.26
Open Hearth Glass Furnace			7.07		
Dissolver and Surge Bin			0.44		
Glass Conveying System			0.44		
Flash Tanks			0.44		
Raw Material Handling			2.00		
Totals	<u>5.26</u>	<u>56.13</u>	<u>48.19</u>	<u>89.29</u>	<u>5.26</u>

GMK:psj